

UNIVERSITY OF ILLINOIS

# ENGINEERING OPEN HOUSE



REINVENTING

REALITY

MARCH 11-12 2005

[HTTP://EOH.EC.UIUC.EDU](http://EOH.EC.UIUC.EDU)

## VISITOR'S GUIDE

VISIT EOH HEADQUARTERS IN DCL  
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## HIGHLIGHTS

### Grade School Competition

The Grade School EOH Program offers many different types of challenging and fun activities for grade school students. This year's Grade School Design Contest, open to 7<sup>th</sup> and 8<sup>th</sup> graders, will be to design and build a bridge out of spaghetti. The bridge that can hold the most weight will be declared winner. The Onsite Grade School Design Challenge will remain a secret until participants compete and will test the engineering mind of all grade levels. And finally, the Grade School Village will offer several hands-on exhibits used to demonstrate basic engineering and scientific principles. Come by and see what these young engineers have to show off!

### High School Design Contest

Teams of high school students have put their heads together to design contraptions for this year's competition, a Rube Goldberg Machine Contest. The machines must remove both old batteries from a two-battery flashlight, install new batteries, and turn the flashlight on. Science and engineering principles are combined with creativity and ingenuity to create these awesome inventions. Stop by the Illini Union on Friday to see the machines in action, vote for your favorite one, and play the new "I spy" game!

### Illini Engineering Challenge

This year will mark the 8th annual Illini Engineering Challenge. The event will take place in the crane bay of Newmark Labs between 9am and 3pm on Saturday, March 12th. This year, participants will be required to design a small boat out of materials provided. Everyone will get a chance to put their creations to the test as judges will determine how much weight the boat can hold. All participants will receive a prize. All students, parents and visitors to Engineering Open House are encouraged to participate!

### AMD W. J. "Jerry" Sanders Creative Design Competition

The AMD W.J. "Jerry" Sanders Creative Design Competition is an annual robotics contest pitting some of the best engineering students in the Midwest in a test of engineering and ingenuity. Robots earn points for removing plastic balls from their bases or shooting them through basketball hoops. Preliminary rounds are 10 minutes per match with robots competing to enter the elimination rounds on Saturday. Join us for one of the largest and most exciting events at EOH. This highlight of Engineering Open House is sponsored by Advanced Micro Devices and encourages creativity and excellence in engineering.

### Traffic and Safety

Engineering Open House takes great pains to ensure the safety of our visitors. We ask you not to enter those rooms and buildings not marked for EOH use as indicated in the Visitor's Guide. Additionally, please follow standard safety precautions with special consideration for campus construction sites.

### EOH Shuttle and Parking

In order to make your visits to EOH more relaxing, parking in EOH is free. Please park your vehicles at E-14 parking lot along Kirby Ave. The EOH Shuttle – operated by Illini Swallow – will be run every 15 minute during EOH hours. There are four stops in every route: Grainger/Kenney Gym, RAL, ACES, and Arcura. A tour guide will introduce the University campus to the visitors during rides, and EOH visitor guides are provided in the EOH shuttle as well.

### Food and Entertainment

EOH proudly presents Area 51, the center stage for entertainment, conveniently located in the big tent between Engineering Hall and Everitt Lab, across the street from the Illini Union. Area 51 is the part of EOH that showcases engineers doing non-engineering things, that include singing, dancing, juggling, you name it! Area 51 is also the place where you can grab a bite to eat and relax for a couple of minutes as you tour the exhibits. It provides an entertaining balance to the technological marvels that are on display across the U of I Engineering campus during EOH.

### Engineering Majors Forum

Are you a prospective student? Would you like to find out more about all 15 majors in the College of Engineering? Come to our open forum in 163 Everitt Lab for more information about all of the engineering departments and to talk to students in each major. This is a chance to get information on all of the departments in one place. For real advice from current students, stop by either of the following times: 11:00-12:00 or 1:00-2:00 Friday, March 11th. Powerpoint presentations will be given from 11-11:20 and 1-1:20, 11:20-12:00 and 1:20-2:00 will be open for one-on-one questions and discussions.

### Exhibitor Vote

Be sure to vote for your favorite EOH exhibit! Voting ballots and boxes are located in most EOH buildings. Help your favorite exhibit gain some well-deserved recognition!

### Highlights

## ENGINEERING OPEN HOUSE TOURS

Visit the highlighted exhibits of Engineering Open House, chosen by the Central Committee!! Tours will also include the High School Rube Goldberg Contest and will end at Kenny Gym at the College Design Contest.

Tours will begin every hour on Friday and Saturday from 10am to 2pm. Sign up at Area 51!!

## AREA 51

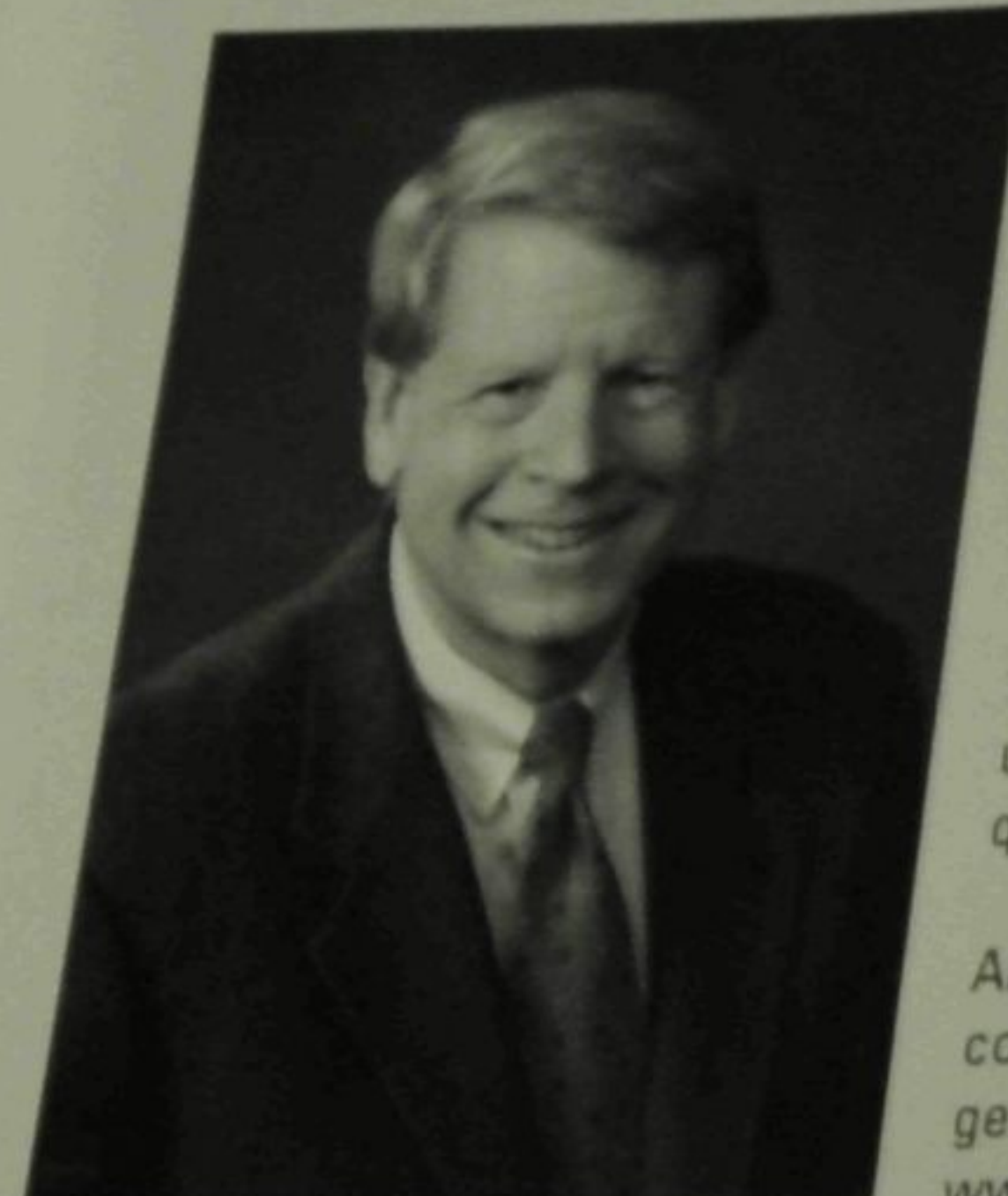
Open Friday, March 11 and Saturday, March 12 between Engineering Hall and Everitt Lab

Come enjoy live performances in the middle of the day and nonstop music provided by Showman Entertainment.

Lunch will be served daily between 11:00am and 1:30pm. For \$3.00 enjoy Garcia's Pizza and chips and pop.



# ENGINEERING OPEN HOUSE 2005 REINVENTING REALITY



Dear Visitors:

Welcome to the 2005 Engineering Open House. Building on more than 80 years of tradition, this is one of the nation's largest and most innovative science fairs. It is organized and managed entirely by science and engineering students in the College of Engineering. The exhibits and contests reflect their enthusiasm for science and engineering, and passion for creativity.

The theme, "Reinventing Reality," is an invitation to open your mind to new and different ideas and to think more creatively—just as the engineering students you will meet today have done to create this experience for you. You will learn about the science and engineering behind everyday products, see how engineering is used to solve problems, and even catch a glimpse of coming innovations in technology. We invite you to ask questions, get involved, and find out for yourselves how important engineering is to society.

Among the more than 200 colleges of engineering in the U.S., our engineering school is ranked No. 4 in the country, trailing only MIT, Stanford, and California-Berkeley. The University of Illinois is one of the world's gems of engineering research and education. Feel free to ask us about our programs or learn more at [www.engr.uiuc.edu](http://www.engr.uiuc.edu).

We thank you for joining us at Engineering Open House.

Sincerely,

*David E. Daniel*  
David E. Daniel  
Dean, College of Engineering

## Open House Central Committee

Engineering Open House Director	Jason Mitchell
Exhibits Director	Denny Tu
Facilities Directors	Karuna Khosla
	Zai Kwan Chang
Judging & Awards Director	Andrew Lee
Traffic & Safety Directors	Louise Lee
	Chris Bestian
College Design Contest Directors	Christos Bais
	Doug Johnson
High School Design Contest Director	Megan Zachar
Grade School/Onsite Design Contest Director	Sabina Ferrara Mullin
Directors of Corporate Relations	Gaurav Kamboj
	Harry Thakkar
Director of Visitor Information	Nasim Suterwala
Director of Electronic Information	Shannon Horneck
Publicity Director	Cindy Chang
Secretary/Treasurer	Ashwin Ramamurthy
Social/Entertainment Director	Jason Chang
Advisor	Katharine Pfennig

## Special Thanks

Dean David Daniel, Dean Keith Hjelmstad, Greg Larson, & Randy Ervin from COE

Kay Kappes, Heidi Craddock & the staff of 206 Engineering Hall

Dean Chuck Olson and Professor Loren Bode from ACES

Jerri Wilkerson, Allan Otto, Craig Grant, Maureen Banks, Sylvia Delgado, & staff from the Division of the Safety and Compliance

Tracy Osby and Timothy Zimmer from Facilities & Services

Debra Forgacs, Monika Pandya, Steve Hesselschwerdt and Mark Netter, & the staff from the Office for Project Planning and Facility Management

Craig Stinson from the Division of Campus Recreation

Sally Walker from University High School

Campus Sportswear

Special Events Committee

## 18th Annual AMD "Jerry" Sanders Creative Design Competition

College students from across the Midwest come to participate in the 18th Annual AMD Jerry Sanders Creative Design Competition, a two-day contest of robotic design and engineering. This year, robots will battle against the clock and each other to keep their bases clear of small plastic balls while shooting them at basketball hoops around the 2000 square-foot, two-level course. Additional points can be earned by placing balls in special locations on the course if the robot can traverse the teeter-totters and rippled bridge. Four teams compete simultaneously in ten-minute rounds, and the highest scoring teams advance to the final rounds on Saturday.



## Scoring

5 points for each basket made

10 points at the end of the round for a base clear of balls

Various points for balls placed in special locations

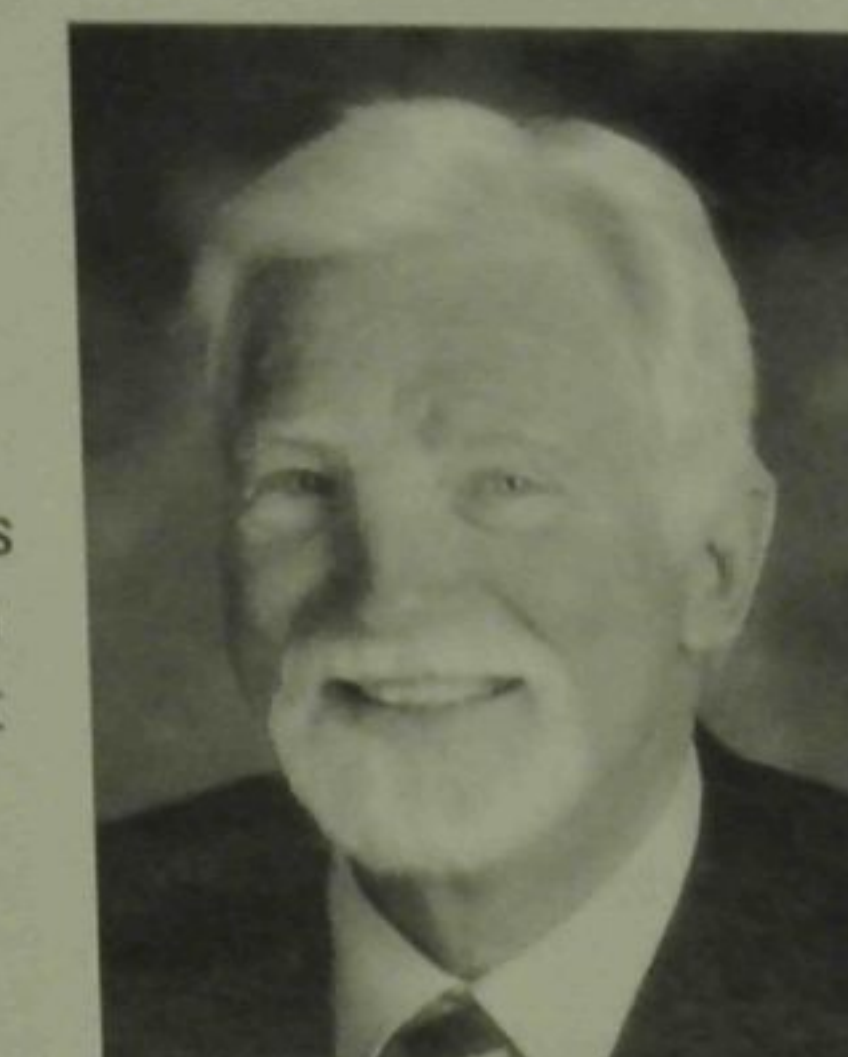
"Jerry" Sanders III graduated from the University of Illinois at Urbana-Champaign in 1958 with a Bachelors of Science in Electrical Engineering. Since then, he's gone on to start one of the most successful companies of our times.

W.J. "Jerry" Sanders III co-founded Advanced Micro Devices (AMD) in 1969. Under his leadership, AMD grew from being a "second-sourcer" of other companies' products to its current position as the fourth largest semiconductor manufacturer in the United States.

Sanders also co-founded several prominent industry groups including the Semiconductor Industry Association, the Santa Clara Manufacturing Group, the Semiconductor Research Corporation and the Microelectronics and Computer Technology Corporation.

The Wall Street Transcript named Sanders the Best Chief Executive Officer in the semiconductor industry for the years 1983, 1984, and 1985, and runner-up in 1991. Mr. Sanders received the Robert N. Noyce Award from the Semi-conductor Industry Association (SIA) in 1998. In 2001 he received the Medal of Achievement from the AeA, the nation's largest high tech industry association.

Sanders' continued support for the University of Illinois and in particular this design contest is a testament to his support of education competition, both of which he thinks breeds success, creativity, and excellence.



**W.J. Sanders III**  
Chairman of the Board and Chief Executive Officer  
Advanced Micro Devices, Inc.

W.J. Sanders III  
Chairman of the Board and Chief Executive Officer  
Advanced Micro Devices, Inc.

## REINVENTING REALITY 3

## Location and Time

March 11 and 12, 2005  
Kenney Gym Annex  
University of Illinois  
at Urbana-Champaign

## Schedule

Competition will be from around 8:00am to 4:00pm both days with final rounds being on Saturday.

There will be rounds running during all the times with bonus rounds and even crowd participation events spaced throughout the day.

## W.J. "Jerry" Sanders Creative Design Competition Committee

Christos Bais and Doug Johnson  
*Co-Chairs*

Jason Mitchell  
*Student Advisor*

Jeff Keith  
*Rules Chair*

Lawrence Han  
*Publicity Chair*

Rachel Williams  
*Volunteers Chair*

Stephen Kempf  
*Webmaster*

Dan Mast  
*Faculty Advisor*

Special thanks to Brian Schmitt  
for the design of this year's logo.

Engineering Open House  
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[HTTP://EOH.CEN.UIUC.EDU](http://EOH.CEN.UIUC.EDU)



## ACRONYMS

## Societies

AAG	Applied Aerodynamics Group
ACM	Association for Computing Machinery
ACS	Alpha Chi Sigma
AES	Audio Engineering Society
IAA	American Institute of Aeronautics and Astronautics
ChE	American Institute of Chemical Engineers
S	American Nuclear Society
	Alpha Omega Epsilon
	Astronomical Society
	American Society of Agricultural Engineering
	American Society of Civil Engineers
	American Society of Mechanical Engineers
	Engineering Freshman Committee
	Environmental Hydrology and Hydraulic Engineering
	Engineering in Medicine and Biology Society
	Engineering Outreach Society
	International Association of Hydraulic Engineering & Research
	Institute of Electrical and Electronics Engineers
	Institute of Industrial Engineers
	Illini Space Development Society
	Illinois Society of General Engineers
	Institute of Transportation Engineers
	International Water Resources Association
	National Organization of Black Chemists and Chemical Engineers
	Programmers Liberation Organization
	Tau Sigma
	Society of Automotive Engineers
	Society for Business Management Engineering
	Society for Experimental Mechanics
	Society of Manufacturing Engineers
	Society of Women Engineers
	Geological Frontiers Society
	Geological Frontiers Society
	Society of Illinois Materials
	Graduate Materials Division
	Computer Science

## PROJECT LISTING BY BUILDING

Project	Society	Room	GS	HS	Adult	College
<b>Coordinated Science Laboratory (CSL)</b>	CSL	807	x			
Systems-on-a-Chip	CSL	814	x	x		
Automated Systems of the Future	CSL	East Entrance	x	x		
Audiovisual Speech Recognition				x		
<b>Digital Computer Laboratory</b>	ASAE	1st Floor		x		
American Society of Agricultural Engineers	EMBS	1st Floor	x	x	x	
Engineering the Process of Drug Development: Target Identification and Validation	EMBS	1st Floor	x	x	x	
Functional Drug Design	EMBS	1st Floor	x	x	x	
Synthetic Materials in Biomedical Applications	EMBS	1st Floor	x	x	x	
Heart Surgery	EMBS	1st Floor	x	x	x	
Joining Organs	EMBS	1st Floor	x	x	x	
Functional Magnetic Resonance Imaging	EMBS	1st Floor	x	x	x	
Immunomedicine				x	x	
Mini Pullers: 1/4-Scale Pulling Tractors				x	x	
<b>Engineering Hall</b>	EA	106B3	x	x		
Be Engineering		106B8	x	x		
Elementary School	SBME	Hallway	x	x	x	
Click Click Cash				x	x	
<b>Int Labs</b>	AES	260	x			
Engineering Society Project		106	x	x	x	
Examples of Engineering at Danville				x	x	
High School	EMBS	168	x	x	x	
Chemically Modified Food	EMBS	168	x	x	x	
Medical Imaging	EMBS	168	x	x	x	
Particles	EMBS	168	x	x	x	
Immunotherapy -						
The Fight to Cure Cancer	EMBS	168	x	x	x	
Scaffolding	EMBS	170	x	x	x	
Mapping and its Benefits	EMBS	170	x	x	x	
Nanotechnology	EMBS	170	x	x	x	
Uses in Bio-imaging	EMBS	170	x	x	x	
Correlation Spectroscopy (FCS)	EMBS	170	x	x	x	
Applications of Carbon				x	x	
Tubes						
Illiniac		165	x	x		
For Innards		165	x	x		
TV Model Rocketry	Synton	151	x	x	x	
Electric Capacitance Lifters	Team Hackness			x	x	
<b>Ing Quad</b>	—	Outside	x	x		
Build Fly	—	Outside	x	x	x	
<b>ms Laboratory</b>	IAHR IWRA	1504	x	x	x	
ms Lab						
<b>oratory</b>	Physics Society	South Lounge	x	x		
ber	Physics Society	NW Stairwell	x	x	x	
ndulum	ISDS	South Lounge	x	x	x	
lossives, Spacesuits, and				x	x	
hoolers						
ion!	ANS	151	x	x		
Society of Astro-nuts!	ISDS	South Lounge	x	x	x	
er Networking	Physics Society	136	x	x	x	
strations	Physics Society	158	x	x	x	
n Engine	Physics Society	South Lounge	x	x	x	
rop Tower	Float'n Illini	South Lounge	x	x	x	
research Presentation	Float'n Illini	South Lounge	x	x	x	
Reloaded	ISDS	South Lounge	x	x	x	
s	Float'n Illini	South Lounge	x	x	x	
ecture Demos	Physics Society	141	x	x		
uid Nitrogen Table	Physics Society	South Lounge	x	x	x	
	Float'n Illini	South Lounge	x		x	
	ANS	South Lounge	x	x		
	ISDS	South Lounge	x	x	x	
	ISDS	South Lounge	x	x	x	
	Physics Society	South Lounge	x	x	x	
Floating or Falling?	ISDS	South Lounge	x	x	x	
<b>Engineering Building</b>						
Time	ASME	135	x	x	x	
	ASME	135	x	x	x	
ive Engineers	SAE	114	x	x	x	
	SWE	153	x	x	x	
<b>ering Laboratory</b>						
stration	ASME	1230		x	x	
	ASME	1225		x	x	
<b>Engineering Building</b>						
esicles	UMO	Hallway	x	x	x	
Stretched	UMO	Hallway	x	x	x	
	UMO	Hallway	x	x	x	
Nanoparticles	UMO	Hallway	x	x	x	
with Bouncy Balls	UMO	Hallway	x	x	x	
	UMO	Hallway	x	x	x	
	UMO	Hallway	x	x	x	
	UMO	Hallway	x	x	x	

## PROJECT LISTING BY BUILDING

Project	Society	Room	GS	HS	Adult	Cont.
Keramos Explores Advanced Ceramics	UMO	Hallway	x	x	x	x
Luminescence	UMO	Hallway	x	x	x	x
Materials and Sports	UMO	Hallway	x	x	x	x
When Materials Fail	UMO	Hallway	x	x	x	x
Materials Show 2005	UMO	119	x	x	x	
Organic LEDs and Liquid Crystal Technologies	UMO	Hallway	x	x	x	x
Recycled Plastics	UMO	Hallway	x	x	x	x
Shape Memory Materials	UMO	Hallway	x	x	x	x
Solar Cells	UMO	Hallway	x	x	x	x
Superconductivity	UMO	Hallway	x	x	x	x
<b>Newmark Laboratories</b>						
The Railroad Reality Experience	REP	Crane Bay	x	x	x	x
Concrete Cylinder Contest	ASCE	Crane Bay	x	x	x	x
Transportation Today	ASCE	Crane Bay	x	x	x	
Balsa Wood Bridge Contest	ASCE	Crane Bay	x	x	x	x
Earthquake Engineering	ASCE	Crane Bay	x	x	x	x
Concrete Canoe	ASCE	Crane Bay	x	x	x	x
<b>Roger Adams Laboratory</b>						
Aluminum: The Reincarnation of Aluminum Cans	AIChE	8	x	x	x	x
Distillation: What needs to be purified?	AIChE	8	x	x	x	x
"Organic" Computer Chips	AIChE	Outside 116	x	x	x	x
Never-Ending Reactions	AIChE	8	x	x	x	x
My Electrolytical Cells are like Whoa!	AIChE	112A	x	x	x	x
Mr. Clean Car Wash	AIChE	Outside 116	x	x	x	x
Got Scents?	AIChE	8	x	x	x	x
Fuel Cells: Today's Technology, Tomorrow's Energy	AIChE	8	x	x	x	
Thermocouples: Sounds Cool	AIChE	112A	x	x	x	
Marshmallow Factory	AIChE	8	x	x	x	
Super Soy Milk	AIChE	8	x	x	x	
Color Me Chemistry!	AIChE	116	x	x	x	
African American in Chemistry/Chem E Quiz Bowl	NOBCChE	Unit Ops	x	x	x	
Mr. Clean Auto Dry Carwash	NOBCChE	Unit Ops	x	x	x	
Fighting the Flu	NOBCChE	Unit Ops	x	x	x	
<b>Siebel Center</b>						
seekBot	-	Hallway	x	x	x	
Simple 3D	-	Atrium	x	x	x	
Nearest Neighbor News Network	-	Atrium	x	x	x	
Pathways	ACM	Hallway	x	x	x	
OpenCollege Project	ACM	2nd Floor	x	x	x	
LaserLine	ACM	Hallway	x	x	x	
SIGMation Presents...	ACM	Hallway	x	x	x	
Password Analysis	ACM	2nd Floor	x	x	x	
The Common Robot	ACM	2nd Floor	x	x	x	
Transactions Everywhere!	ACM	Hallway	x	x	x	
Star Trek.NET	ACM	Hallway	x	x	x	
Autonomous RC Mini-Cars	ACM	Hallway	x	x	x	
Filesharing over Onion Networks	ACM	Hallway	x	x	x	
ChimpDS	ACM	Hallway	x	x	x	
Optimizing Strips Planning Algorithms	ACM	Hallway	x	x	x	
Monster vs. Army	ACM	Hallway	x	x	x	
Steel Potato	ACM	Hallway	x	x	x	
Ars Physica	ACM	Hallway	x	x	x	
Slime vs. Slime	ACM	Hallway	x	x	x	
Dark Supremacy	ACM	2nd Floor	x	x	x	
UIUC Pathways	ACM	Hallway	x	x	x	
Hydraulic Computing!	-	Atrium	x	x	x	
The World of Vaelin	RPG Developers	Atrium	x	x	x	
Smart Closet	WCS	Hallway	x	x	x	
The Parade	WCS	Hallway	x	x	x	
MapQuest Radios	WCS	Hallway	x	x	x	
Crimson Room in the Cube	WCS	Hallway	x	x	x	
<b>Talbot Laboratory</b>						
The Future of the Space Shuttle	AIAA	105		x	x	x
American Institute of Aeronautics and Astronautics	AIAA	105		x	x	x
Liquid Nitrogen	AIAA	104		x	x	x
Tribute to Aviation	AIAA	104		x	x	x
Cubesat	Cubesat	206H		x	x	x
Fluids Lab Demo	SEM	126			x	x
TAM Toys and Knot Tying Contest	SEM	Crane Bay		x	x	x
UIUC Design Build Fly	Design Build Fly	Basement Hall		x	x	x
Fuel Cell Applications and Demo	H & RSE	Basement Hall		x	x	x
<b>Transportation Building</b>						
Castaway	ISGE	103		x		
Sticky Skyscrapers	ISGE	101		x		
Animations of Robotic Motion	ISGE	318		x	x	
Paint Splatter Rockets	ISGE	112		x	x	
DOE Techniques Take Flight	ISGE	114			x	
The Segmonster	ISGE	2nd Floor		x	x	
Pedal for Power!	EWB	203			x	
SLATfest	Gamma Epsilon	207		x	x	
EXCITE bikes	Gamma Epsilon	N Outdoor Platform			x	
Real Problems, Real Solutions	Gamma Epsilon	3rd Floor			x	
Your Design Comes to Life!	Gamma Epsilon	305, 307			x	
Space Age Upside Down Pendulum!	Gamma Epsilon	202			x	
Magic Scooter Mobile	Gamma Epsilon	5th Sidewalk		x	x	



## Illini Union

1401 W. Green, Urbana

**Map Code: I**

The Illini Union Building holds meeting rooms, cafeterias, bowling alleys, the Alumni Association offices a branch of the University library, and hotel rooms.





## Agricultural Engineering Sciences Building

1304 W. Pennsylvania, Urbana

Map Code: A

The Agricultural Engineering Sciences Building is home to the Agricultural Engineering Department and the Department of Food Sciences.

## PROJECT DESCRIPTIONS

### Coordinated Science Research Laboratory Digital Computer Laboratory

#### Systems-on-a-Chip

Coordinated Science Lab

The Integrated Circuit Testing Laboratory will showcase the design and testing of micro-chips or integrated circuits (ICs). Micro-chips are the brains behind all modern day consumer and communication products such as computers, lap-tops, cell-phones, internet communications, digital cameras, video game modules and others.

Room Number: B07

This exhibit is suitable for: GS, HS

Exhibit demonstration time: Continuously Friday, until 1pm Sat

#### Automated Systems of the Future

Coordinated Science Lab

Try to escape the police in our traffic network or create your own route to work and have the system drive you there - collision free! It's a vision of the future of the internet and the future of everyday objects - where toaster and alarm clock coordinate to wake you up to hot toast! Come and experience some of the problems - and solutions - just don't get caught....

Room Number: B14

This exhibit is suitable for: GS, HS

Exhibit demonstration time: Continuously Friday, until 1pm Sat

#### Audiovisual Speech Recognition

Coordinated Science Lab

This project showcases a multi-sensory array used to collect audiovisual speech data, for training and testing automatic speech recognizers, in the passenger seat of a Ford Taurus. All data were recorded digitally, using an ADAT (8-channel digital audio tape) and a digital video camcorder and is currently being used to train automatic speech recognition software.

Room Number: Ford Taurus - East Entrance

This exhibit is suitable for: GS, HS

Exhibit demonstration time: Continuously Friday, until 1pm Sat

### Digital Computer Laboratory

American Society of Agricultural Engineers ASAE is professional engineering society that promotes the advancement of agricultural and biological engineering. The Illinois student branch is among the top pre-professional societies in the nation. Come learn how ASAE can benefit your academic and professional career through networking and educational events. Society membership is open to students of all majors.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: HS, Adult

Exhibit demonstration time: Continuously

### Engineering the Process of Drug Development: Target Identification and Validation

EMBS

The process of Drug Discovery is a multifaceted approach involving genomics, proteomics, genetics and high costs, aimed at discovering disease-linked targets that can be stabilized, reversed or prevented. We will explore methods used at prioritizing among these targets.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Functional Drug Design

EMBS

Historically, drug discovery has depended upon chance observations and laborious work. The introduction of modern molecular characterization techniques allow drug interaction sites to be accurately mapped. This opens an exciting potential for drug design based on functional interactions with biological molecules. Come learn about this new technology.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Synthetic Materials in Biomedical Applications

EMBS

With the advancement of technology, synthetic biomaterials are allowing the growth of a new spectrum of alternative medicine. Developments include tissue engineering, polymeric materials for implants, biomaterial-based delivery systems for small drugs, active

proteins and DNA that increase efficacy and reduce repeated administration, biodegradable material that reduces surgical needs, and more.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Heart Surgery

EMBS

Cardiovascular diseases, such as hypertrophic cardiomyopathy, have threatened the health of many Americans since the beginning of the 20th century. After Christann Barnard performed the first human heart transplant in 1967, many advanced heart surgical instruments and techniques including artificial heart pump, effective transplant and bypass surgical methods, and programmed pacemakers have been developed and hence play important roles in improving many cardiovascular patient's lives.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Cloning Organs

EMBS

Research the recent advancements in cloning and how it may be applied to cloning just organs instead of an entire organism. It can start with cloning projects from the past, (Dolly the sheep) and then progress to what is being developed now and what scientists are aiming for in the future in the field of cloning.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Functional Magnetic Resonance Imaging

EMBS

An interactive look into the first magnetic resonance technique that is allowing doctors and scientist to look into the human brain in vivo for the first time.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Nanomedicine

EMBS

Theoretical medical nanomachines would be injected into the bloodstream to help eradicate virtually all forms of disease. Investigate how these nanorobots would go about their task,

and any possible risks or side effects that may result from having machines in our bloodstream.

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Illini Pullers: 1/4-Scale Pulling Tractors

Illini Pullers

Every year, the Illini Pullers engineer and manufacture a 1/4-scale pulling tractor to compete in the annual ASAE National Student Design Competition in Moline, IL. At competition we go head to head with other universities from around the nation and the world. Come to see our tractors on display and learn about the design of the 2005 tractor!

Room Number: 1<sup>st</sup> Floor Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Engineering Hall

Engineering Advocates

We will astound you with our crazy demonstrations and exciting experiments. This exhibit is designed to be surprising, humorous, and lots of fun, and we'll teach you to do some cool demos.

Room Number: 106B3

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Leal Elementary School

Engineering Outreach Society

Projects designed and displayed by third grade students at Leal Elementary school.

Room Number: 106B8

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Click Click Click Cash

SBME

Investment in the stock market can help secure your financial future. We have developed both an online stock game that lets people invest play money and a large stock ticker display that streams real-time values of the stocks currently traded in the game. Come see how much "money" you can make!

Room Number: Hallway

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously



## Coordinated Science Lab

1308 W. Main St., Urbana

Map Code: D

Coordinated Science Lab is situated in the Computer and Systems Research Laboratory, and serves as a research building.

## Everitt Labs

### Audio Engineering Society Project

Audio Engineering Society

Audio engineering is one of the most pervasive aspects of our day to day life. Our exhibit has demonstrations and theoretical explanations for some of the many audio systems in existence. Demonstrations include digital and analog amplifiers, active equalizers, midi controllers, speakers, and more!!!

Room Number: 260

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Principles of Engineering at Danville High School

Danville High School Principles of Engineering

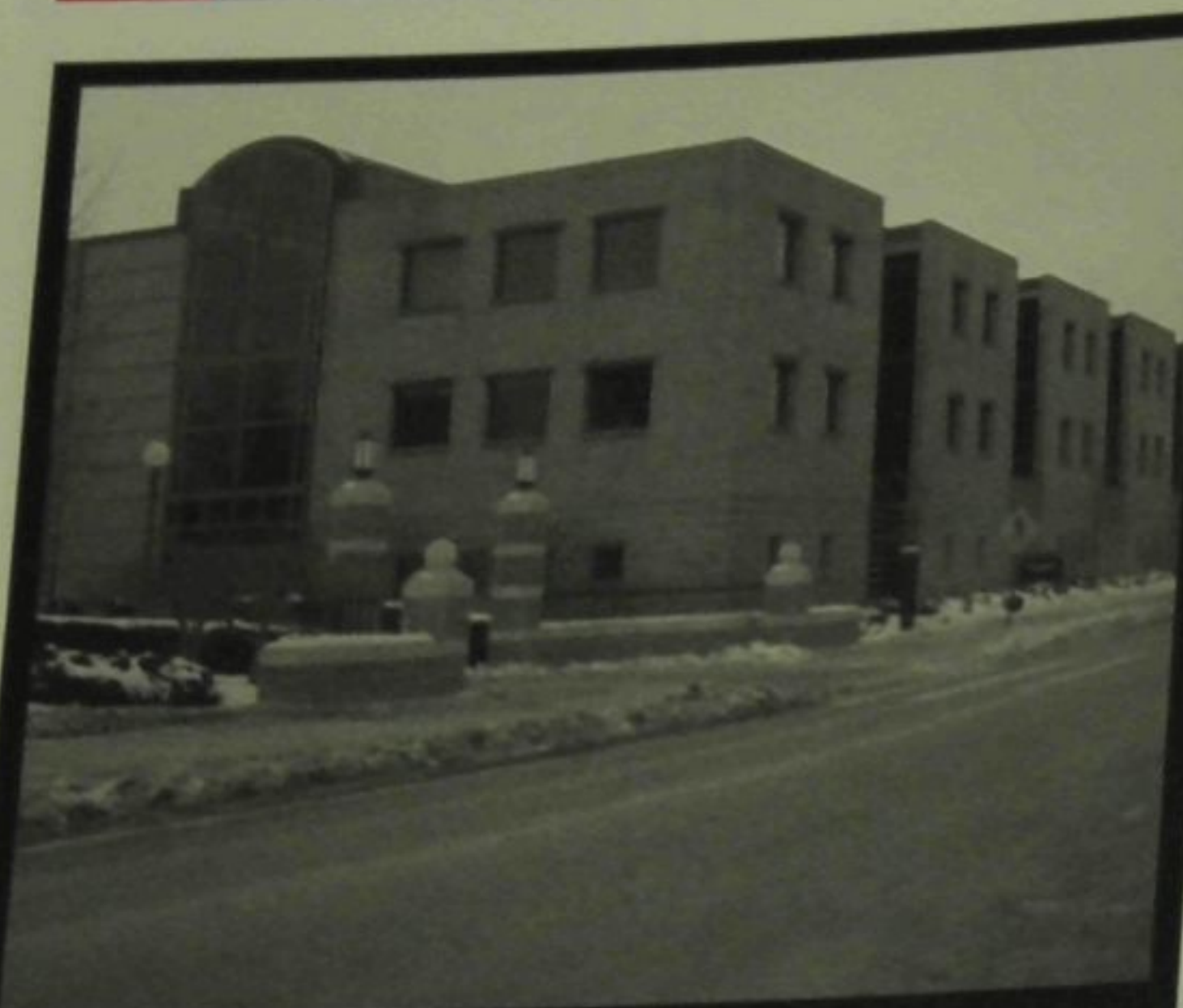
Ninth and tenth grade students at Danville High School have the unique opportunity to take an engineering course this year. Come see the marble sorter machines we made from Fischertechnik!

Room Number: 106

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously





### Digital Computing Lab

1304 W. Springfield, Urbana

Map Code: E

The Digital Computing Lab is the former home to the Department of Computer Science and the Computing and Communications Services Office.

### Genetically Modified Food

EMBS

Although the ethics behind this type of engineering have attracted a lot of attention, little is known about the process itself. A closer look at the reasoning behind it, the techniques used and the problems it creates is needed. Furthermore, a question worth asking is: how will this change our future?

Room Number: 168

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Biomedical Imaging

EMBS

From diagnosing rare diseases to solving crimes, medical imaging is an integral and necessary part of life. Everyday advances are being made to make this technology more efficient and effective, helping make everyone's lives better by catching and stopping potential problems.

Room Number: 168

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Nanoparticles

EMBS

The ever-advancing medical field is further boosted by the use of nanoparticles. Originally developed for uses in industry, nanoparticles are now used to illuminate and locate tumors, pinpoint viruses in the body, and could help extend the human lifespan.

Room Number: 168

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Radioimmunotherapy - "The Fight to Cure Cancer"

EMBS

Explore this new form of radiotherapy currently used to destroy localized cancer cells such as those of Hodgkin's disease. Radioactive material is attached to antibodies specific to the tumor. These antibodies are derived from the patient's own cancer so that they are selective in targeting that tumor when they are injected into the patient.

Room Number: 168

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Bone Scaffolding

EMBS

Most human activities require the use of movement of arms, legs, and fingers. Intact bones make this possible. However, osteoarthritis and bone breakage are major concerns that hinder movement. Bone scaffolding can now be used to grow "new" bones that may eventually be used in most bone surgical procedures.

Room Number: 168

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Gene Mapping and its Benefits

EMBS

Gene Mapping is a recent development that will soon have positive repercussions upon our society. We will explore the latest technological breakthroughs in the field of gene mapping. Technological aspects of gene mapping will be discussed, with a particular emphasis on the benefits that can be reaped from this technology in the future.

Room Number: 170

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### DNA Nanotechnology

EMBS

The investigation of DNA molecules with unusual motifs and topologies has emerged these few years as one of the newest and most exciting research areas in DNA engineering. Artificially synthesized single stranded DNA can self-assemble into various types of DNA crossover molecules. This technique has potential application in molecular electronic circuit, surface chemistry and molecular robotics. Come to explore challenges and application for DNA nanostructures and enjoy the excitement of creativity.

Room Number: 170

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Advances in Bio-imaging

EMBS

Explore the world of advances in how technology has shaped what the eye can really see. Learn how bio-imaging has played a role in research and health professions.

Room Number: 170

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Fluctuation Correlation Spectroscopy (FCS)

EMBS

Spectroscopy techniques play a vital role in the various biophysical and biochemical fields. Our ability to make precise and sensitive measurements determines the depth and accuracy our research can obtain. Currently, FCS is a technique that can be used to get a peek, while it also holds a lot of promise for the future.

Room Number: 170

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Biological Applications of Carbon Nanotubes

EMBS

Carbon nanotubes, first discovered in 1991, are thin cylinders composed of carbon. They have many promising applications, due to their unique electro-mechanical properties. These applications include use as biosensors, tiny sensors that can detect specific biological molecules, and use as artificial muscle.

Room Number: 170

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Processor Innards

Illiniac

Modern day computer processors tend to be little mysterious boxes. This project is a simple processor built on a large board, showing what is inside it. We will be explaining how it operates, with the aid of indicator lights attached to some of the parts.

Room Number: 165

This exhibit is suitable for: GS, HS

Exhibit demonstration time: Continuously

### Amateur TV Model Rocketry

Synton Amateur Radio Club

Catch a glimpse from the world above as the Synton Amateur Radio Club uses an Amateur TV transmitter to send back video.

Room Number: 165

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Asymmetric Capacitance Lifters

Team Hackness RSO

Using massive voltage differences between two planes of a conductive sheet, a simple power supply can make objects float! Come

see this continuation of a prize-winning project from EOH 2003.

Room Number: 151

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Engineering Quad

#### Design Build Fly

Currently we are participating in the AIAA Cessna/DNR Student Design/Build/Fly Competition, which requires we "design, fabricate, and demonstrate the flight capabilities of an unmanned, electric powered, radio controlled aircraft." Come and see our airplane, "(Un)Stable Mabel", and see how it has been designed to meet this year's mission profile.

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

#### Paint-Bot

Paint-Bot is an autonomous paintball-shooting robot, a practical demonstration of computer vision algorithms, path planning, and simple robotics. It's a robot that shoots things. How much more do you need to know? Fun for the whole family!

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Hydrosystems Laboratory

#### Hydrosystems Laboratory

IAHR IVRA

This project will let users explore the Ven Te Chow Hydrosystems Laboratory and see many large and impressive facilities used in ongoing research. All working facilities will be on display and the audience will be informed of the research currently being conducted in each facility. Past work will be displayed on an array of posters showing the full capability of the largest hydraulics lab at the University of Illinois. The sheer size and capacity of many of these facilities will fascinate the audience and since most are custom built, creation and innovation are certainly included in the tour. Facilities: giant wave tanks, 50 and 20 meter tilting flumes, physical models, and more, this 11,000 sq. ft. hydraulics laboratory houses numerous state of the art facilities used in cutting edge research. Let us give you a tour.

Room Number: 1504 Main Lab

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously



### Engineering Hall

1308 W. Green, Urbana

Map Code: F

Engineering Hall, an example of Renaissance Revival architecture, was built in 1894. It is the administrative hub of the College of Engineering and home to a number of Engineering Council Societies.

### Loomis Laboratory

#### Cloud Chamber

Physics Society

Cloud chambers were an ingenious way for early particle physicists to "see" elementary particles. With some rubbing alcohol, dry ice, and a glass case, anyone can investigate the wonders of the cosmos. As the chamber becomes saturated with vapor from rubbing alcohol, cosmic rays pass through the vapor and cause it to condense. Here's your chance to witness the thousands of particles that pass through your body every second!

Room Number: South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously





### Everitt Lab

1406 W. Green, Urbana

Map Code: G

Everitt Lab is home to the Department of Electrical and Computer Engineering and is named after the late William L. Everitt, former department head and dean of engineering.

### Foucault Pendulum

Physics Society

Think a pendulum swings in a straight line? Think again! Due to the rotation of the earth, a Foucault pendulum actually processes in a circle over the course of a day.

**Room Number:** Northwest Stairwell

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Fun with Explosives, Spacesuits, and Grade-Schoolers

Illinois Space Society

What has ISS been doing this year? Learn about the projects the ISS sub committees have been working on to further promote space exploration. Exhibits here will include the Mars Societies reconnaissance airplane, the educational outreach's textbook, and the technical projects high altitude rocket.

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Futures in Fusion!

American Nuclear Society

Fusion power offers the potential for an almost limitless source of clean energy for future generations. Come learn about this fascinating area! Our project has cool pictures, exciting electromagnetism demonstrations, and more! Be amazed by our can crusher and ring launcher, and then get a chance to play with plasma!

**Room Number:** 151

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### ISS/ SEDS: Society of Astro-nuts!

Illinois Space Society

Are you looking for other people who want to see the commercialization and exploration of space? Learn about SEDS, a world-wide student organization for those of us who want to reach the stars.

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Laser Computer Networking

Physics Society

We will show how computers can talk to each other across a room on beams of red laser light; no wires, fibers or radio waves allowed!

This demonstrates a new type of wireless communication technology that will become more popular in coming years.

**Room Number:** 136

This exhibit is suitable for: HS, Adult

Exhibit demonstration time: Continuously

### Laser Demonstrations

Physics Society

From your CD player to the supermarket checkout, many modern technologies utilize lasers. Stop by to learn how lasers work and to see other neat things that lasers can do.

**Room Number:** 158

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Liquid Nitrogen Engine

Physics Society

Think you need to burn something or generate heat to power an engine? Think again! This engine is powered by liquid nitrogen that boils at room temperature—no fire or electricity required!

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Microgravity Drop Tower

Float'n Illini

The Float'n Illini Microgravity Research Team conducts experiments on board NASA's "Weightless Wonder". Our simple demonstration using a drop tower will give you a better idea of the conditions that both we and astronauts work in as well as information about the research that we do.

**Room Number:** Outside 151

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Microgravity Research Presentation

Float'n Illini

The Float'n Illini Microgravity Research Team participates in an annual NASA competition allowing us to fly an experiment on board a microgravity simulation plane. We invite you to learn more about this year's project in satellite control systems as well as opportunities for undergraduates to get involved.

**Room Number:** Outside 151

This exhibit is suitable for: HS, Adult

Exhibit demonstration time: 1:30 PM

### Mission Space Reloaded

Illinois Space Society

Think you know space? Test your knowledge of space exploration at our interactive space mission game where you will try to safely land your spacecraft with your knowledge of the history and science behind space travel. Do you have the right stuff to make it home?

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Paper Airplanes

Float'n Illini

We offer an exciting opportunity for kids to learn the basics of aerodynamics as we teach them to build their own creative and exciting paper airplanes

**Room Number:** Outside 151

This exhibit is suitable for: GS

Exhibit demonstration time: 11 AM

### Physics Van Lecture Demos

Physics Society

Come see some of our favorite and most exciting physics demonstrations from the introductory physics courses here at the university! Learn about basic physics concepts such as motion, electricity, light, and sound and how they are useful in the different fields of engineering, as well as everyday life. Each show will last approximately 45 minutes, and we guarantee a few explosions!

**Room Number:** 141

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Physics Van Liquid Nitrogen Table

Physics Society

Nitrogen is a gas that makes up more than 70% of our atmosphere and liquefies at -320 degrees Fahrenheit! At the liquid nitrogen table you'll see several fun physics experiments with solids, liquids and gases, pressure, and most importantly...frozen fruit! Room

**Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Pop Rockets

Float'n Illini

Kids are given the exciting opportunity to build and launch their own simple rockets out of paper and film canisters. A must do for grades K-2!

**Room Number:** Outside 151

This exhibit is suitable for: GS

Exhibit demonstration time: 12 PM and 3 PM

### Real Radiation

American Nuclear Society

Come visit this exhibit to learn how radiation affects your daily life. Don't know the difference between alpha, beta, and gamma radiation? We'll teach you! Find out about all the different applications of radiation, including how it is being used in the medical field!

**Room Number:** South Lounge

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Space: In 3-D!

Illinois Space Society

Tired of seeing plain two dimensional pictures of planets and satellites? Then check out our Gallery of 3-D space artwork and photographs.

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### SpaceShip WON!

Illinois Space Society

Learn about the 10 million dollar competition designed to jumpstart the space tourism industry and the team that won it! Exhibit will feature pictures and videos from many of the competitors and the flights of SpaceShipOne, plus a working model of the spacecraft's revolutionary feathering system

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Spark Chamber

Physics Society

Spark chambers are used to detect cosmic rays. A large electrical charge is built up on metal plates in the spark chamber. As the cosmic rays shoot down from the sky, they'll trigger this build-up of charge to jump from one plate to the next, creating a shocking spark between the plates.

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Weightlessness: Floating or Falling?

Illinois Space Society

How can weightlessness be simulated here on earth? Learn how as ISS creates a brief



### Hydrosystems Lab

301 N. Matthews, Urbana

Map Code: H

The Hydrosystems Lab is a research facility in the Department of Civil and Environmental Engineering.

weightless environment using a three story drop tower. Learn how astronauts and scientist can experience weightless conditions without leaving Earth's atmosphere.

**Room Number:** South Lobby

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Mechanical Engineering Building

### Mousetrap Mania

American Society of Mechanical Engineers

Problems with a mouse in the house? Our project may not solve any real rodent problems, but we have designed the world's largest and most complicated trap. See how our trap takes a sequence of small events to trigger the capturing mechanism. Sure you could use a small boring trap, but where's the fun in that?

**Room Number:** 135

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously





### Kenney Gym

1406 W. Springfield, Urbana

Map Code: J

Kenney gym will be the headquarters for EOH. It is the home of the Jerry Sanders, Grade School, and Onsite Design Competitions.

NOTE: There are no bathrooms in Kenney Gym.

### All Engines, All the Time

*American Society of Mechanical Engineers*

What's the difference between a diesel engine and a regular car engine? What does it mean if your engine is turbocharged? How do fuel cells work? If you're wondering how some of the most important mechanical devices in your life work, we have the answers. Using visuals we'll explain how these machines work and how they create motion.

**Room Number: 135**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Air Attack

*American Society of Mechanical Engineers*

You may not realize it, but air can be used to lift heavy objects and create enormous forces. The use of air to complete mechanical tasks is called pneumatics and is highlighted in this exhibit with a hands-on demonstration. Challenge your friends by seeing who can use the air pumps to win the race!

**Room Number: 135**

This exhibit is suitable for: GS, HS

Exhibit demonstration time: Continuously

### Society of Automotive Engineers

Both the formula and baja racing teams will be displaying their vehicles that are under construction along with those from past years. Whether you like racing on pavement or off-road, come check out the cars along with the formula shop and engine dynamometer facilities.

**Room Number: 114**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Too Hot To Handle

*Society of Women Engineers*

This year SWE's Team Tech worked with Northrop Grumman on redesigning a component used in much of their machinery. The redesign involved making it more capable of withstanding greater temperatures, so our team analyzed different materials and methods that could help with the problem. Come by and check out our results!

**Room Number: 153**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

## Mechanical Engineering Laboratory

### Make Objects, Fast!

*American Society of Mechanical Engineers*

Come see how manufacturing is being transformed by new technologies. Fast prototyping is a way to quickly make parts with less hassle than traditional manufacturing techniques. Watch as lasers build machine parts layer by layer, right in front of your eyes!

**Room Number: 1230**

This exhibit is suitable for: HS, Adult

Exhibit demonstration time: Continuously

### Sand Casting Demonstration

*American Society of Mechanical Engineers*

Many metal parts of all sizes are created by sand casting, a process where molten metal is poured into a sand mold. We'll show you how it's done, step-by-step as we melt down solid aluminum and make EOH 2005 commemorative tokens. Watch and learn how it's done, and receive a token to remember your day.

**Room Number: 1225**

This exhibit is suitable for: HS, Adult

Exhibit demonstration time: Every Hour

## Material Science and Engineering Building

### Drug Delivery: Lipid Vesicles

*Undergraduate Materials Organization*

Advances in the field of Biomaterials and Bioengineering provide great promises for the future of medicine. The materials used in such applications must be biocompatible with tissues in either in vitro or in vivo conditions. We'll present polymerized liposome use, micro channel devices, and biocompatible materials. Presentation will also include current in-lab results.

**Room Number: Hallway**

This exhibit is suitable for: HS, Adult

Exhibit demonstration time: Continuously

### Bent out of Shape and Stretched to the Limit!

*Undergraduate Materials Organization*

What makes a polymer's physical properties best for a particular application? We will demonstrate samples of several common plastic products made from a variety of man-made and

synthetic polymers, explaining the differences between these polymers at a molecular level as a result of processing techniques.

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Biomaterials

*Undergraduate Materials Organization*

Have you ever wondered why some materials can be used as a hip replacement while others cannot? The latest technology allows bio-compatible materials to be stronger, more durable, and better than ever! Come check them out.

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Carbon Nanotubes and Nanoparticles

*Undergraduate Materials Organization*

Present the history of nanotechnology and processing techniques for nanoparticles and carbon nanotubes used in solar panels, biological labels, and advanced transistors. Demos of some of these advanced carbon nanotube technologies.

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Discovering Polymers with Bouncy Balls

*Undergraduate Materials Organization*

This project will demonstrate the properties of polymers through the use of homemade "bouncy balls." Visitors are welcome to join in the fun and make their very own bouncy ball to take home!

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Edible Atoms

*Undergraduate Materials Organization*

An introduction to polymers, metals, and ceramics using snack foods. It's deliciously entertaining!

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Glass Blowing

*Undergraduate Materials Organization*

Live glassblowing demonstrations! We will be learning about the glassblowing process as well as glass characteristics/properties.

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Goop and Slime

*Undergraduate Materials Organization*

We will explore the materials science involved in polymer-based gels such as that made from cornstarch and water, observing properties of these materials. We will also look at possible opportunities for these particular materials in the future.

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Keramos Explores Advanced Ceramics

*Undergraduate Materials Organization*

Come learn about advanced ceramics used in the engineering field. Demos and give-aways!

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Luminescence

*Undergraduate Materials Organization*

A look at the processes of luminescence in its many forms with examples of its application in everyday life. Also, an investigation into luminescence versus incandescence (light from heat).

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Materials and Sports

*Undergraduate Materials Organization*

Learn about the materials science behind catchers' gear, athletic shoes, tennis rackets, and golf balls. Discover how they're constructed, with consideration on safety and performance issues.

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously



### Loomis Lab

104 S. Goodwin, Urbana

Map Code: L

The Loomis Laboratory of Physics is home to the Department of Physics.

### When Materials Fail

*Undergraduate Materials Organization*

A look into the amazing world of materials.

**Room Number: Hallway**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Materials Show 2005

*Undergraduate Materials Organization*

A great introduction to Materials Science in the form of a video presentation. Always entertaining and informative!

**Room Number: 119**

This exhibit is suitable for: All Ages

Exhibit demonstration time: Continuously

### Organic LEDs and Liquid Crystal Technologies

*Undergraduate Materials Organization*

Organic LED's and liquid crystal displays are fascinating new technologies. Explanation of these devices and their fabrication techniques.





## Materials Science and Engineering Building

1304 W. Green, Urbana

Map Code: M

The Materials Science and Engineering Building holds labs and offices for the Department of Materials Science and Engineering.

will be discussed. See what's inside your laptop or palm pilot screen!

**Room Number:** Hallway

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Recycled Plastics

*Undergraduate Materials Organization*

What do those funny numbers on the bottom of bottles mean? What's so special about plastics anyway? How exactly do they recycle them, and why don't we recycle more? Come and learn the answers to these questions and see some cool demos!

**Room Number:** Hallway

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Shape Memory Materials

*Undergraduate Materials Organization*

Nitinol wires have the ability to return to their original shape with the application of heat after being physically deformed. Samples of this fascinating material will be demonstrated and their properties explained.

**Room Number:** Hallway

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Solar Cells

*Undergraduate Materials Organization*

Check out our solar cell apparatus and learn how it works. The various types of electronic materials required for a solar cell to operate will be discussed.

**Room Number:** Hallway

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Superconductivity

*Undergraduate Materials Organization*

An investigation to the varied and exciting aspects of superconductors. The projects examine such properties as zero resistivity, the DC Josephson effect, and the Meissner effect—the cause of the well-known magnetic levitation. The science behind these phenomena is explained with demonstrations of superconductors at work.

**Room Number:** Hallway

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Newmark Laboratories

### The Railroad Reality Experience

*Railroad Engineering Program*

All Aboard!!! Take the fast-track to our booth! We have games to play, tons of freebies, and information about our outdoor, hands-on learning site. We hope to demonstrate the inner workings of the railroad industry along with teaching important safety guidelines. This will surely bring out the railroader in everyone!!!

**Room Number:** Crane Bay

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

### Concrete Cylinder Contest

*American Society of Civil Engineers*

Students mix their own batches of concrete, and then load them in compression. The con-

testant with the cylinder that withstands the most load is awarded prizes. Friday will be the undergraduate division; Saturday will be the graduate division.

**Room Number:** Crane Bay

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Transportation Today

*American Society of Civil Engineers*

Come see real size traffic lights, and explore the new Light Emitting Diode (LED) signals. Also, stop by the display to measure your perception reaction time. In the area of pavement research, new asphalt and concrete mixes have been proposed to allow for longer pavement life.

**Room Number:** Crane Bay

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Balsa Wood Bridge Contest

*American Society of Civil Engineers*

Local schools have teams of students who build the balsa wood bridges, they bring them to EOH and we test the load they can hold

**Room Number:** Crane Bay

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Earthquake Engineering

*American Society of Civil Engineers*

Build your own model building with K'Nex and see how your design would react in an earthquake on our mini shake table. Learn more about how real buildings react and what modern techniques engineers are using to help keep structures safe when earthquakes strike.

**Room Number:** Crane Bay

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Concrete Canoe

*American Society of Civil Engineers*

Do you know concrete can float? Come see how UIUC students design, build, and race canoes made out of light weight concrete.

**Room Number:** Crane Bay

This exhibit is suitable for: All Ages

*Exhibit demonstration time: Continuously*

## Roger Adams Laboratory

### Alumination: The Reincarnation of Aluminum Cans

*American Institute of Chemical Engineers*

Have you ever wondered what exciting journeys your aluminum cans take once they leave your recycling bin? Find your way to the Alumination booth to discover the fate of your used aluminum cans.

**Room Number:** 8

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

### Distillation: What needs to be purified?

*American Institute of Chemical Engineers*

Ever wondered how the gasoline in your car is made? Have you ever thought about how alcohol makes it to the bottle? You will learn all this and more as the process of distillation is examined in its entirety. A small-scale demonstration will also be provided for all viewers.

**Room Number:** 8

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

### "Organic" Computer Chips

*American Institute of Chemical Engineers*

In recent years, molecular field effect devices have been researched extensively. Among these molecular devices, Organic Thin Film Transistors show great promise in decreasing cell phone cost and creating flexible display devices.

**Room Number:** Outside 116

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Never-Ending Reactions

*American Institute of Chemical Engineers*

Sometimes a chemical reaction just can't make up its mind! Come discover oscillating reactions and learn why they make such beautiful changing colors. Also, find out how these perpetual phenomena apply to our everyday world.

**Room Number:** 8

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## My Electrolytical Cells are like Whoa!

*American Institute of Chemical Engineers*

Ever wonder if putting those batteries in the fridge really made a difference? Come find out and see our attempt at our own "battery." Also, see how chemistry and chemical engineering are closely related with simple demonstrations.

**Room Number:** 112A

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Mr. Clean Car Wash

*American Institute of Chemical Engineers*

The R&D chemical engineers and Procter and Gamble have found a way to make something as simple as washing your Ferrari a complicated chemical process. Come see chemical principles such as ion exchange at work in this latest innovation and maybe even snag some free P&G products!

**Room Number:** Outside 116

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Got Scents?

*American Institute of Chemical Engineers*

Ever wondered how they make your favorite scent? Come and join us in discovering the magical world of batch processes, distillation, and perfume making at its best. Not only will you be coming out with knowledge, but smelling good too.

**Room Number:** 8

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Fuel Cells: Today's Technology; Tomorrow's Energy

*American Institute of Chemical Engineers*

What would happen if we ran out of oil and gas? A major ramification could be found no farther than the car in your own garage. No transportation would be possible without a ready gas supply. Find out what scientists are doing before it is too late.

**Room Number:** 8

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Thermocoustics: Sounds Cool

*American Institute of Chemical Engineers*

Sounds cool? Come by for free ice cream and a look at the refrigerator that uses sound



## Mechanical Engineering Building

1206 W. Green, Urbana

Map Code: N

The Mechanical Engineering Building is home of the Department of Mechanical and Industrial Engineering.

waves to refrigerate.

**Room Number:** 112A

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Marshmallow Factory

*American Institute of Chemical Engineers*

Ever wondered how the marshmallows are made? Come visit our very own marshmallow factory and find out while you munch on these fluffy favorites. Will it pop or will it shrink? Test your marshmallow knowledge with our super-duper marshmallow demo!

**Room Number:** 8

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Super Soy Milk

*American Institute of Chemical Engineers*

Ever curious about soymilk? Wondering how it's made or why it has gained so much popularity over the last decade? If so, you should stop by to learn about the history and produc-





## Mechanical Engineering Lab

105 S. Mathews, Urbana

Map Code: O

The Mechanical Engineering Lab has labs and offices for the Department of Mechanical and Industrial Engineering.

tion of soymilk. Samples of soymilk will be available, of course!

**Room Number: 8**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Color Me Chemistry!

*American Institute of Chemical Engineers*

At this booth you will go on a half-hour whirlwind journey into the land of color. While being dazzled by a multitude of "colorful" demonstrations, you will learn color basics such as why objects appear the way they do, to more advanced color concepts such as why certain transition metals exhibit multiple colors. This lecture-demonstration, run by the American Chemical Society, is a wonderful booth to bring the young ones to, even if the young ones are simply those who are young at heart!

**Room Number: 116**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Every Hour*

## African American in Chemistry/Chem E Quiz Bowl

*The National Organization of Black Chemists and Chemical Engineers*

A fun presentation on the life of an African American in the field of Chemistry or Chemical Engineering and how he or she has contributed to the field(s). Following the 3-5 minute presentation is a fun quiz. The more questions one gets correct, the more prizes you win!!!

**Room Number: Unit Ops**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Mr. Clean Auto Dry Carwash

*The National Organization of Black Chemists and Chemical Engineers*

Find out how the components in this product work to allow it to dry cars without any spots and without manual labor. Cool demonstration and free samples!!!

**Room Number: Unit Ops**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Fighting the Flu

*The National Organization of Black Chemists and Chemical Engineers*

The chemistry/chemical engineering behind Kimberly Clark's Anti-Viral Tissue from Kleenex. This new tissue is designed to prevent the spread of the flu and cold viruses. Free Kleenex samples!!!

**Room Number: Unit Ops**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Siebel Center

### seekBot

Created to demonstrate computer, electrical, and software engineering principles, seekBot is a 4-wheel drive rover with onboard computer and sensor array to allow for remote data collection and exploration. If you're into robots and computers, check out this impressive machine.

**Room Number: Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Every Hour*

## Simple 3D

Simple 3D is a pen and ink based three-dimensional sketching and drafting tool. Easy enough for a child to use and powerful enough for whiteboard-style collaboration, Simple 3D brings intuitive interface to the world of 3D modeling.

**Room Number: Atrium**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Nearest Neighbor News Network

NearestNeighbor.Net is a collaborative filtering system that aggregates weblogs and other online news sources. The server examines the profiles of similar users to suggest interesting articles from sources a user does not subscribe to. This ends the tedium of tracking multiple sites and allows for a wider view of the web.

**Room Number: Atrium**

This exhibit is suited for: HS, Adult

*Exhibit demonstration time: Continuously*

## Pathways

*Association for Computing Machinery*

Get where you need to go! You tell Pathways where you want to go and it will tell you the fastest way to get there, whether that is on foot, bike, or bus.

**Room Number: Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## OpenCollege Project

*Association for Computing Machinery*

This exhibit is a proof of concept of the idea of "Open Collaborative Spaces," a unique interdisciplinary idea that ties large databases of information, cutting edge personal information devices, and a background of social networks and interaction. Appropriate for anyone with an interest in the social aspects of technology!

**Room Number: 2<sup>nd</sup> Floor Landing**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## LaserLine

*Association for Computing Machinery*

Until now, laser visualization systems have been both expensive to purchase and extremely complicated to set up. The MacWarriors project is designed to address both of these issues. By using the standard audio output from computers, and an inexpensive scanner combined with software running

on the computer, the MacWarriors project allows anyone to display simple graphics and animations with an ordinary laser pointer.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## SIGMation Presents...

*Association for Computing Machinery*

SIGMation presents the random workings of our imaginations! That's right, we've spent hours racking our brains for the crazy, wild, and out there ideas to come up with a project sure to entertain you. So stop by and see what our eccentric minds have come up with!

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Password Analysis

*Association for Computing Machinery*

Password Analysis One of the largest problems facing people these days is the ever-increasing amount of passwords we are forced to manage. We have conducting a through survey and analysis of people's password usage including an analysis of several groups of passwords looking for patterns. Finally we propose several methods for solving the password problem.

**Room Number: 2<sup>nd</sup> Floor Landing**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## The Common Robot

*Association for Computing Machinery*

SigBOT is presenting a group of platform robots that come from a common base. These robots are programmed to work with each other to achieve a shared goal. Although they share the same underpinnings, each robot will be able to accept individual modules for different jobs to finish the job.

**Room Number: 2<sup>nd</sup> Floor Landing**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Transactions Everywhere!

*Association for Computing Machinery*

Signatures are insecure! Do you remember the last time someone questioned a signature on a check or credit card bill? SIGEmbedded has created a better alternative! We have built a system for authenticating credit card and other transactions on cell phones.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Star Trek.NET

*Association for Computing Machinery*

Star Trek.NET aims to provide a speech based environment by allowing users with Pocket PCs to talk with each other and query information through voice.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Autonomous RC Mini-Cars

*Association for Computing Machinery*

As a group our primary project this year is a game with autonomous RC mini-cars, where our members each write software to control the movement of a car around a game board. We'll also be showing off a couple other member projects, including a Theremin-like instrument, maybe an MP3 player.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Filesharing over Onion Networks

*Association for Computing Machinery*

SIGMil's project seeks to explore the possibility of taking a layered approach to anonymity networking. Recently, a transport layer anonymity network, called Tor, has come into existence. We will leverage this network to deploy an Edonkey2k P2P network.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## ChimpOS (ChimpOS.com)

A web substitute to your operating system of choice, all in the comfort of your favorite browser. ChimpOS supports a small-scale file system and applicaiton base for users to enjoy while away from their personal computer. After creating an account, a member can use the included web browser, test editor, media player, and more... all in the confines of their internet browser—the perfect solution for your operating system away from home.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Optimizing Strips Planning Algorithms

*Association for Computing Machinery*

SigArt is doing a research project to optimize Strips planning algorithms. The goal is to use



## Roger Adams Lab

600 S. Mathews, Urbana

Map Code: R

Roger Adams Laboratory is home to the Department of Chemical Engineering.

statistical methods to determine common sequences of operators and create new operators to make planning faster.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Monster vs. Army

*Association for Computing Machinery*

Monster vs. Army is exactly that: one player controls a gigantic monster that thrashes and destroys a city in 3D 3rd-person mode, and the other player controls the city's army in top-down RTS-style.

**Room Number: 1<sup>st</sup> Floor Hallway**

This exhibit is suited for: All Ages

*Exhibit demonstration time: Continuously*

## Steel Potato

*Association for Computing Machinery*

Steel Potato chronicles in 2D the unusual, offbeat, and occasionally epic adventures of an oddly metallic tuber and his 50-cent sticky-hand. The game is entirely student-written and





### Siebel Center

201 N. Goodwin, Urbana

Map Code: V

The Thomas M. Siebel Center is the new home to the Department of Computer Science.

includes an optimized OpenGL graphics engine, rigid-body physics, and a continuation-passing style scripting language.

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Ars Physica

*Association for Computing Machinery*

Ars Physica is a simulation/puzzle game in the tradition of The Incredible Machine. The player is equipped with an assortment of various tools and random gadgets in a full 3D environment and watch as real physical laws govern the machine's interactions.

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Slime vs. Slime

*Association for Computing Machinery*

Balls of slime beat each other into submission by any means possible. Friendly antagonism at its best!

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Dark Supremacy

*Association for Computing Machinery*

Dark Supremacy is a RPG in which you play a Renegade Assassin that has returned to seek vengeance. It adds new mechanics to the battle which include a Grid System and the ability to combine magical attacks with various other characters.

**Room Number:** 2<sup>nd</sup> Floor Landing

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### UIUC Pathways

*Association for Computing Machinery*

The quickest route from one building to another varies based on mode of transportation (walking versus biking versus riding the bus). Based on a system of weighted graphs for each mode of transportation, UIUC Pathways will return to the user the fastest route for getting from one place to another. This is essentially a mapquest for public transportation.

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Hydraulic Computing!

Electrons power your computer on a very small scale, but water flows just like electrons! Come see our system with water that thinks!

**Room Number:** Atrium

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### The World of Vaelin

*RPG Developers*

The World of Vaelin from RPG Developers is a Massively Multiplayer Online Role Playing Game. The game is in development, but we have a demo to demonstrate basic functionality. Some features include vast areas, unique classes, beautiful graphics, quests, combat, a unique user interface, and fantabulous sound. Come to our booth and try our game or pick up a CD and connect from home!

**Room Number:** Atrium

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Smart Closet

*Women in Computer Science*

Keep track of the clothes you have in your closet! Search for the perfect outfit for any occasion! This project is here to help you organize the items in your closet. Keeping your clothes, jewelry, and bags organized will make picking out your outfits each morning will be more joy than misery. By allowing you to categorize, rank, and even upload pictures this program is easy and fun to use.

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### The Parade

*Women in Computer Science*

Displayed on the Seibel Center Video Wall, watch our array of animated characters as they walk by and display information of events occurring in the building.

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### MapQuest Radios

*Women in Computer Science*

Finally, you can be free of fizzing, choppy music in your car. Enter your musical preferences, your location, and your destination. Get directions and available, plays-your-type-of-music radio stations along the route. This site is coded in HTML and data-mines map and radio station info from other sites using Perl.

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Crimson Room in the Cube

*Women in Computer Science*

Submerge yourself a three dimensional environment that mimics a puzzle room similar to the 'Crimson Room'. Use your wits and try to solve this puzzle and escape.

**Room Number:** 1<sup>st</sup> Floor Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

## Talbot Laboratory

### The Future of the Space Shuttle

*American Institute of Aeronautics and Astronautics*

Come and learn more about the space shuttle, and NASA's new plans for space exploration. Check out a real heat tile from a space shuttle, which we will try our hardest to burn.

**Room Number:** 105

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Liquid Nitrogen

*American Institute of Aeronautics and Astronautics*

Learn about the wacky properties of liquid nitrogen at this exhibit, and its many uses in the space industry. Come and watch the exhibitors freeze everything they can get their hands on!

**Room Number:** 105

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Tribute to Aviation

*American Institute of Aeronautics and Astronautics*

Come celebrate a century of aviation at the AIAA "Tribute to Aviation" exhibit! Check out how airplanes have developed over the years, from the Wright Brothers' flyer to the Boeing 747. Fly your own balsa wood rubber band powered airplane, learn some new and crazy paper airplane designs, and more!

**Room Number:** 104

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

### Cubesat

*Cubesat*

The Illinois Observing Nanosatellite (ION) will be U of I's first student developed satellite to go into orbit. Over 50 students across 6 majors have participated in the development of the project over the last 3.5 years. The satellite will take atmospheric measurements, space test ion thrusters, space test a processor, and demonstrate 3-axis attitude control on a cubesat.

**Room Number:** 206H

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

## Fluids Lab Demo

*Society for Experimental Mechanics*

Come find out what a hydraulic jump looks like, and the mechanics of fluids in our fluids lab tour.

**Room Number:** 126

This exhibit is suited for: HS, Adult

*Exhibit demonstration time:* Continuously

## TAM Toys and Knot Tying Contest

*Society for Experimental Mechanics*

Come have fun with TAM as you learn the mechanics of some intriguing toys. Also participate in our ongoing knot tying contest by trying to tie the strongest knot. See your knot be tested right before your eyes.

**Room Number:** 220 Talbot

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

## Concrete Crushing

Come watch large concrete cylinders crushed in our 3 million pound crushing machine. It will end in a big bang for sure!

**Room Number:** South Crane Bay

This exhibit is suited for: All Ages

*Exhibit demonstration time:* 10:00am, 11:30am, 1:00pm, 2:30pm

## UIUC Design Build Fly

Every year, DBF designs, builds and then flies a RC model airplane to complete a specific mission for the annual Cessna/ONR competition. We put a lot of effort into making these airplanes from the ground up. Our display will have some photos of our current work and actual models of the airplanes that were built in the past year.

**Room Number:** Basement Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously

## Fuel Cell Applications and Demo

*Center for Human & Robotic Space Exploration*

Fuel Cells are a clean, efficient alternative energy source. Find out how they will be used in space exploration and in cars. Come learn how to build your own fuel cell, and see one in action.

**Room Number:** Basement Hallway

This exhibit is suited for: All Ages

*Exhibit demonstration time:* Continuously



### Talbot Lab

104 S. Wright, Urbana

Map Code: T

Talbot Laboratory houses the Department of Aeronautical and Astronautical Engineering and the Department of Theoretical and Applied Mechanics.

## Transportation Building

### Castaway

*Illinois Society of General Engineers*

What would you do if you were stranded on an island and you only had a few supplies to build a raft? Learn about the physics behind buoyancy and have a chance to test a design. Prizes will be awarded!

**Room Number:** 103

This exhibit is suited for: GS

*Exhibit demonstration time:* Continuously

### Sticky Skyscrapers

*Illinois Society of General Engineers*

Have you ever wanted to build a skyscraper? Now is your chance! Using only marshmallows and toothpicks, you must attempt to build the largest tower. Prizes will be awarded!

**Room Number:** 101

This exhibit is suited for: GS

*Exhibit demonstration time:* Continuously





### Transportation Building

104 S. Mathews, Urbana

Map Code: U

The Transportation Building houses the General Engineering Department.

### Animations of Robotic Motion

*Illinois Society of General Engineers*

Do you think animation is only for movies and videogames? Computer animation is an integral part of robotic development. Animations of a robotic arm, a pendulum robot, and a few bipedal walking robots created by the animator programs developed will be presented.

Room Number: 316

This exhibit is suited for: All Ages

Exhibit demonstration time: Continuously

### Paint Splatter Rockets

*Illinois Society of General Engineers*

5, 4, 3, 2, 1 lift off! You pick the components of a small rocket and see how high it flies after launch! Prizes will be awarded to the highest flyers.

Room Number: 112

This exhibit is suited for: All Ages

Exhibit demonstration time: Continuously

### DOE Techniques Take Flight

*Illinois Society of General Engineers*

Even simple engineering designs require

testing to determine what factors can best improve them. The size, shape, and angle of a paper airplane wing can all affect its performance. This exhibit shows how DOE techniques can be used to find an optimal engineering design. Participants will be challenged to construct an airplane and test it for distance. Prizes will be awarded.

Room Number: 114

This exhibit is suited for: HS, Adult

Exhibit demonstration time: Continuously

### The Segmonster

*Illinois Society of General Engineers*

The Segmonster (or a segway-robot) is a Segway that has a robotic arm/body built onto it that can autonomously operate. The Segway then responds by rolling forward (in an attempt to move the wheels under the center of mass). This action mimics the way a person would ride the Segway. Come see the Segway for yourself and watch just how closely it follows you!

Room Number: 2<sup>nd</sup> Floor Hallway

This exhibit is suited for: All Ages

Exhibit demonstration time: Continuously

### Pedal for Power!

*Engineers Without Borders (EWB)*

Did you know many villages in the world must supply themselves with electricity by pedaling bicycles? This is a form of sustainable energy and it is very important in many places around the world. Come see what it is like to pedal for power and let us share with you other forms of sustainable energy that will become increasingly important in the future.

Room Number: 203

This exhibit is suited for: HS, Adult

Exhibit demonstration time: Continuously

### SLATfest

*Gamma Epsilon*

We will be throwing eggs out of the windows!! Can you save them?! Participants will be given a variety of materials in order to build a device that will keep the egg from breaking. Prizes will be awarded to the best designs of the day! Don't miss it!

Room Number: 207

This exhibit is suited for: All Ages

Exhibit demonstration time: Continuously

### EXCITE bikes

*Gamma Epsilon*

Observe live demonstrations of various bicycle tricks and discover the mechanics behind

them. Also learn about the basic operating principles of the bicycle and how engineering decisions attempt to optimize performance.

Room Number: North Outdoor Platform

This exhibit is suited for: HS, Adult

Exhibit demonstration time: Continuously

### Real Problems, Real Solutions

*Gamma Epsilon*

It's the ultimate homework assignment – solve a real company's biggest problem that even they can't figure out! Check out these award-winning Senior Projects by General Engineering students.

Room Number: Third Floor Hallway

This exhibit is suited for: HS, Adult

Exhibit demonstration time: Continuously

### Your Design Comes to Life!

*Gamma Epsilon*

Start in room 305, Transportation Building, where you can use the latest in 3D solid modeling software to create virtual models. Then move to room 307, where 3D printers will convert your virtual design into a physical reality.

Room Number: 305, 307

This exhibit is suited for: HS, Adult

Exhibit demonstration time: Continuously

### Space Age Upside Down Pendulum!

*Gamma Epsilon*

If you ever wanted to see and play with a truly spectacular gadget, now is your chance! Knock the pendulum down and watch the mechanical arm amazingly rebalance the pendulum upside down.

Room Number: 202

This exhibit is suited for: HS, Adult

Exhibit demonstration time: Continuously

### Magic Scooter Mobile

*Gamma Epsilon*

Meet the best invention since the Segway...well, sort of. Our project is a modification of an ordinary electric scooter, such that it is powered by energy stored from the scooter's man-powered motion. Our exhibit allows everyone to try out this amazing new scooter technology for themselves! Don't miss out!

Room Number: Sidewalk between Transportation Building and MEB

This exhibit is suited for: All Ages

Exhibit demonstration time: Fri: 10-12 and 2-4, Sat: 10-12 and 1-2

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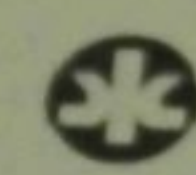


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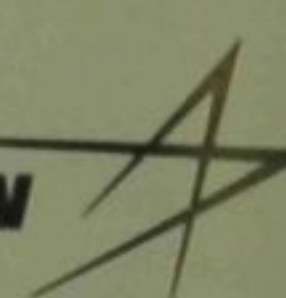
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## CODE BUILDING

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D	Coordinated Science Research Lab
<b>E</b>	<b>Digital Computing Lab (EOH Headquarters)</b>
F	Engineering Hall
G	Everitt Lab
H	Hydrosystems Lab
I	Illini Union
J	Kenney Gym
K	Lincoln Hall
L	Loomis Lab
M	Materials Science and Engineering Bldg
N	Mechanical Engineering Bldg
O	Mechanical Engineering Lab
P	Newmark Lab
Q	Plant Sciences Lab
R	Roger Adams Lab
S	Stock Pavillion
T	Talbot Lab
U	Transportation Bldg
V	Siebel Center

